

## ORNITHOLOGICAL LITERATURE

SPECIES LIMITS IN THE INDIGOBIRDS (PLOCEIDAE, *VIDUA*) OF WEST AFRICA: MOUTH MIMICRY, SONG MIMICRY, AND DESCRIPTION OF NEW SPECIES. By Robert B. Payne. Misc. Publ. Mus. Zool. Univ. Mich. No. 162, 1982: 96 pp., 29 figs., 5 tables. Price not given.—In the indigobirds of southern Africa, male plumage is a blackish color with green, blue or purple gloss. Females of all species have streaked “sparrowy” brown plumage. Males of similar morphological type in a given area mimic the song of a single species of firefinch (*Lagonosticta*) on which the female indigobirds are brood-parasitic, and there is a high degree of assortative mating as females tend to mate with males having bill and foot color similar to their own. It is therefore possible to determine nonarbitrary species limits in this complex of morphologically similar forms.

The situation in West Africa is less clear, however, because while males vary in plumage color, female indigobirds seem to be indistinguishable, and some criterion other than that of assortative mating must therefore be found for determining species boundaries for coexisting populations of indigobirds. Payne and others have found in earlier studies that young indigobirds mimic the mouth pattern of the young of their host firefinch species. Because this is a genetically determined trait rather than an acquired one, it could be a useful means of distinguishing local populations of indigobirds. In the present study Payne used this criterion to establish the occurrence of genetic differences among the indigobirds associated with different species of firefinch hosts, and further looked for association in indigobirds of distinct male breeding plumage and mimicry of a single firefinch species' song. By applying these two criteria Payne was able to determine with considerable confidence the limits of five species of *Vidua* in West Africa, including *V. raricola* and *V. larvaticola* spp. nov.; these latter two had previously escaped attention because of morphological similarity to other forms. A thorough discussion of the abundant nomenclatural problems is given as well as maps showing distribution of the indigobird species and their firefinch hosts, sonagrams, photographs of nestling mouth patterns and a very useful gazetteer.

In cases of disjunct populations Payne primarily used song mimicry to link these populations with known species of indigobirds: they were considered conspecific with species A if they mimicked the same firefinch song as A even if they were morphologically dissimilar to A. In general, all indigobirds that mimic the song and the mouth pattern of nestlings of a single species of firefinch were considered members of a single species of *Vidua* regardless of geographic occurrence and external adult morphology. Males singing the same mimetic song in a local area tend to be similar in breeding plumage, however.

It is possible to identify most museum specimens of male indigobirds taken in the areas studied intensively even when nothing is known about the song behavior of the birds prior to collection. This is not true of females, however, and specimens from areas where little field work has been done are best left nameless until further studies of indigobird behavior and morphology in such areas clarify species relationships.

Although the species concept most widely accepted at present is the biological one, that interbreeding organisms constitute a single species, it is frequently impractical to apply this concept in determining species limits, and some form of the morphological species concept is most commonly applied. Indigobirds generally resist the application of both concepts, however, and Payne's extensive field work and careful analysis have resulted in an approximation that is both more appropriate to and revealing of the unusual biology of his animals.—MARY C. MCKITRICK.